Estimating the Epidemiology of Oral Pigmentation

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ONE of the normal clinical characteristics of the oral tissues is the presence of pigmentation in a large number of human beings. It is found in the gingivae, mucous membranes, hard and soft palates, tongue, and floor of the mouth. This physiologic oral pigmentation occurs in all the races of mankind. It has been reported in Africans, East and West Indians, Chinese, Israelis, Indonesians, Filipinos, Algerians, Koreans, Portuguese, Arabians, Vietnamese, Ceylonese, Syrians, Italians, Rumanians, Germans and many other nationalities.[1] No reliable estimates of the occurrence of oral pigmentation have been reported, and furthermore quantitative and qualitative valuations have not been assessed. Information on these matters would add much data to this interesting and expanding phase of oral anthropology and diagnosis.[2]

The authors have used the Dopi assessment (Dummett-Gupta Oral Pigmentation Index) as a clinical tool in estimating the quantitative occurrence of pigmentation of the gingivae. Studies attest to its usefulness as an epidemiologic tool in estimating just how widespread is oral pigmentation, and in comparing the amounts of pigmentation occurring in the various oral tissues and in the maxillary and mandibular arches.[3]

DEFINITION

The Dopi assessment represents the assignment of a composite numerical value to the total melanin pigmentation seen on clinical examination of the various tissues comprising the oral cavity. In the case of the gingivae or gum tissues, the assessment is made for each arch separately, and is obtained by dividing the sum of the assigned estimates of pigmentation in the lingual and buccal unit spaces by the total number of unit spaces in the arch.

METHOD

Pertinent basic information about the patient, his oral habits and facial complexion are recorded on a special Oral Pigmentation Examination Form. The gingivae of the maxillary and mandibular arches are each divided into 32 unit spaces, sixteen on the lingual aspect and sixteen on the buccal and labial surfaces (Fig. 1). Each unit space approximates the area of the marginal gingiva, and extends from the gingival crest apically about 4 or 5 mm. up to the level of the attached gingiva. The unit spaces correspond to the buccal and lingual gingival areas which norm-

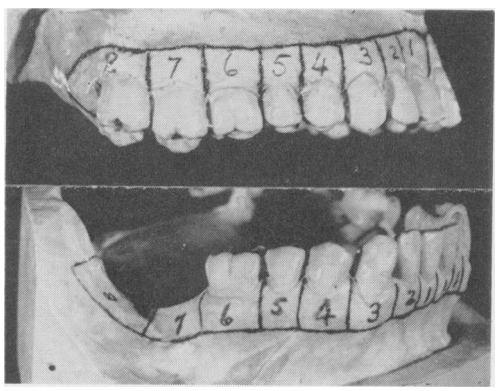

Fig. 1

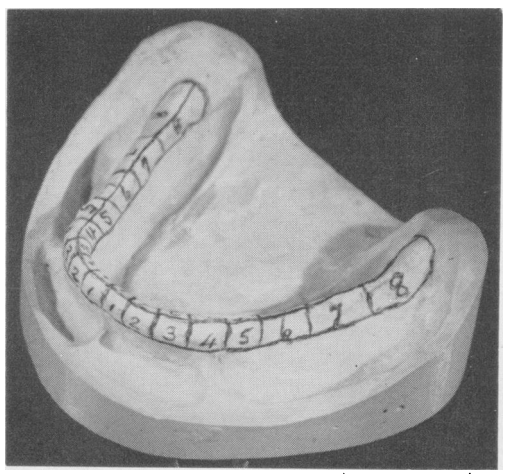

Fig. 2

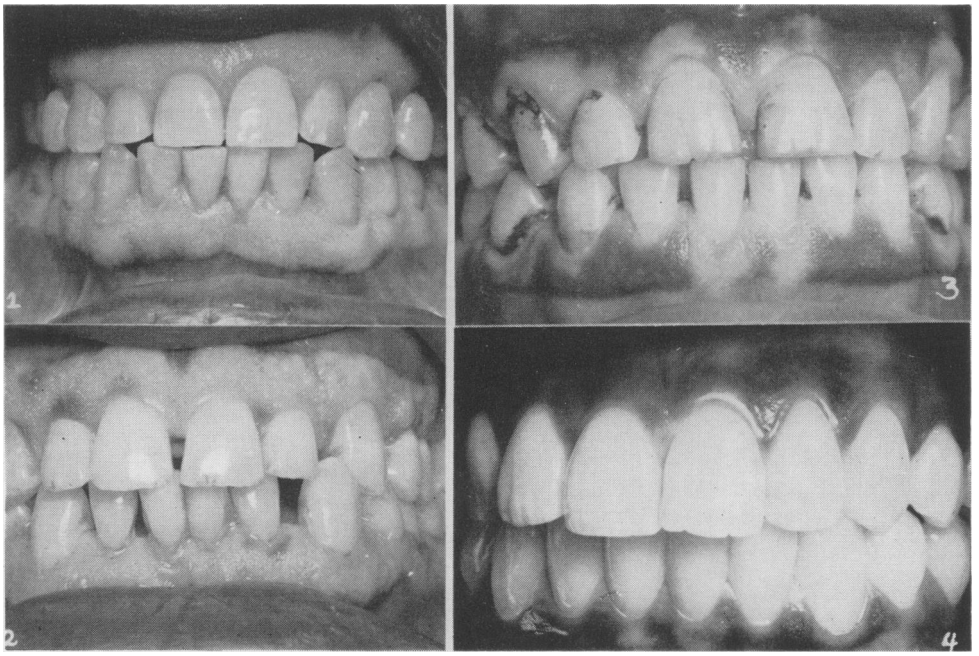

Fig. 3. 1. A case in which DOPI assessment of maxillary and mandibular gingivae is 0.

2. A case in which DOPI assessment of maxillary gingivae is 0.56 / mandibular gingivae is 0.40 —Mild

3. A case in which DOPI assessment of maxillary gingivae is 1.61 / mandibular gingivae is 1.27 —Moderate

4. A case in which DOPI assessment of maxillary gingivae is 2.6 / mandibular gingivae is 2.31 —Heavy

ally invest the human adult dentition. In cases in which there are either partially or completely edentulous areas, this division into 32 unit spaces is still maintained since the oral pigmentation is independent of the presence or absence of teeth (Fig. 2).

The method consists of assigning a numerical oral pigmentation estimate to each one of these 32 unit spaces. The assigned estimate is based upon the following scale:

0 = No clinical pigmentation (pink tissue)
1 = Mild clinical pigmentation (mild light brown color)
2 = Moderate clinical pigmentation (medium brown or mixed pink and brown coloration)
3 = Heavy clinical pigmentation (deep brown or blue-black tissue)

Following the assignment of ratings, the numerical estimates in the maxillary arch are totalled and divided by 32. The resulting number is the DOPI assessment for the maxillary arch. The mandibular arch is treated similarly:

$$\text{DOPI ASSESSMENT (Maxillary)} - \text{(Gingivae)} \quad \frac{\text{Sum of assigned estimates of components}}{\text{32 unit spaces}}$$

The Dopi Assessment is scaled according to the following designations:

0 = No clinical pigmentation of the gingivae
0.031 — 0.97 = Mild gingival pigmentation
1.0 — 1.9 = Medium gingival pigmentation
2.0 — 3.0 = Heavy gingival pigmentation

SUMMARY

A method for the assessment of oral pigmentation (DOPI) in epidemiological studies has been formulated. The method is useful and has a concrete way of estimating pigmentation of the gingivae (Fig. 3). Further studies are in progress in various ethnic and racial groups.

LITERATURE CITED

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3. DUMMETT, C. O. et al. A Method for the Appraisal of Pigmentation of the Oral Tissues: The Dopi Assessment. (In press).